

Spring 2018

## Biology News, Spring 2018

University of Northern Iowa. Department of Biology.

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Where life begins . . .

# Biology News



Spring Edition - 2018

University of Northern Iowa

## Greetings from Biology

by Dr. David Saunders, Department Head



Changes are bound to occur whether positive or negative and are always stressful. Big changes are coming for the Department of Biology. The Department of Biology will be losing a combined 159 years of experience and institutional memory due to retirement.

Dr. Bart Bergquist provided 40 years of dedicated teaching and service to the Department of Biology, positively influencing numerous lives in the process. Bart has remained upbeat and supportive of the department since his arrival in the fall of 1978.

The turnover in staff will be felt for a very long time. Beverly (Bev) Schomaker, the designer and producer of these newsletters for the past 10 years and keeper of the Biology webpage, has been with the Department since January 2006. Her smile and sly sense of humor have made all of our days in the Department of Biology much more pleasant. Her graphic design and people skills have served our Department well over the past 12 years.

Larry Hilton came to the Department in 1984. Larry has made our ability to teach laboratory sections run seamlessly, providing supplies, equipment, glassware and solutions (both of the chemical and problem varieties) to more than 30 various laboratory sections we offer each semester. Larry also assisted in the repair of equipment, vehicle maintenance, equipment-design projects, and assisting in various field related courses such as Field Zoology. Despite a department of more than 30 faculty and staff, Larry always found time to assist each of us.

Sandi Ingles has kept our Department running efficiently and smoothly for the past 41 years. She has a unique knack of anticipating the needs of students, faculty and administration, while finding unique solutions to issues none of us have had to solve previously. This makes her the “go to” person for all of us in Biology. If you need it done and need it done right, see Sandi!

I have had the distinct pleasure of interacting with these individuals over the past 10 years. Their efforts, personalities, and interactions have made my job more enjoyable, fulfilling and much easier to manage.

There is good news to report as well! Our students and alumni continue to be extremely successful. We have added a new face to the Department, Ms. Linda Reardon-Lowry, our new academic advisor, and she has hit the ground running, making immediate impacts on our students and department. We continue to receive funding that provides cutting-edge equipment for student use and learning.

Finally, we repeat a story about alumnus Tom Rust, whose laboratory guides assisted numerous biology students, myself included, in learning general biology and anatomy and physiology.

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## UNI research students



UNI students Elizabeth Turcotte (left) and Ryan Lockard (right) with project collaborator, Dr. Mary Wilson from the University of Iowa and UNI professor of Biology, Dr. Nilda Rodriguez (second and third, respectively).

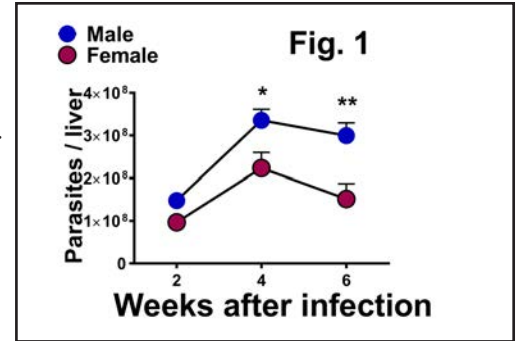
**R**esearch done by Biology alumni Ryan D. Lockard (MS, 2017) and Elizabeth A. Turcotte (BS, 2016) was presented at the Sex as a Biological Variable Workshop held on October 26th, 2017 at the National Institutes of Health (NIH). The presentation: “Epidemiological and experimental evidence for sex-dependent differences in the outcome of *Leishmania infantum* infection” is part of a collaborative project among UNI, the University of Iowa, the Federal University and Ministry of Health of Rio Grande do Norte, Brazil.

*Leishmania* spp. are prevalent in over 90 countries and it is estimated that 12 million people are infected worldwide. Current therapies are costly, toxic and the parasite is developing resistance, making the drugs ineffective. Unfortunately, most patients live in underdeveloped regions, so there is no financial incentive to develop better drugs. The insufficient initiatives to treat this disease have led the World Health Organization to classify leishmaniasis as a “neglected disease”.

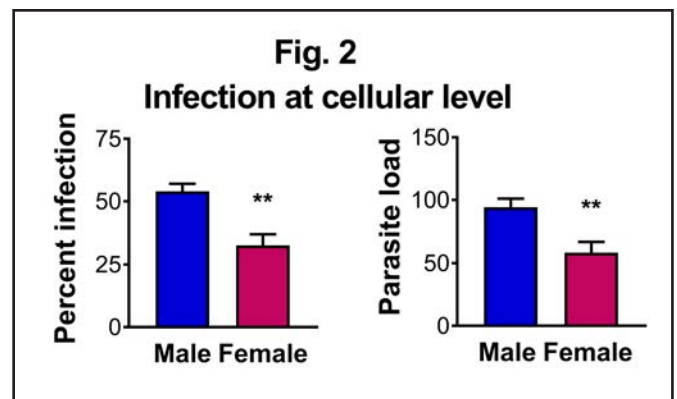
In Brazil, *L. infantum* is the causative agent of visceral leishmaniasis, a disease characterized by an enlarged liver and spleen and suppression of the immune system, leading to death if not treated. Medical personnel have noticed a higher number of males among these patients. The reasons for this trend are unclear and could involve behavioral and/or biological factors. To discern the role of biological factors, if any, in the apparent male bias of this disease, Ryan, Elizabeth and Dr. Rodriguez used various experimental approaches. This work showed that para-

sites reproduced more in the livers of male mice than in the livers of their female counterparts (Fig. 1).

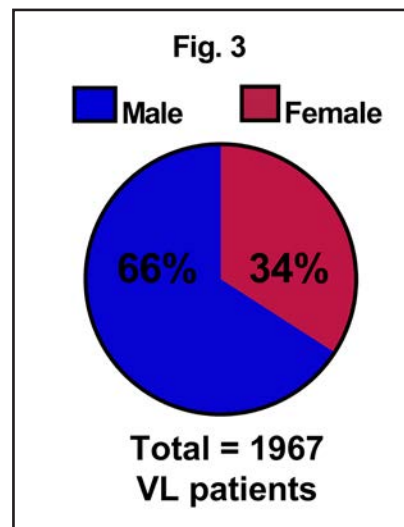
At the cellular level, parasites enter and survive more in cells derived from male mice



than in cells derived from females (Fig. 2). Furthermore, epidemiological data collected from 1967 individuals showed that males account for 66% of visceral leishmani-



asis patients (Fig. 3). Overall, these results suggest that sex is a biological variant affecting infection outcome and that males are inherently more susceptible to disease caused by



*L. infantum*. Hopefully, these findings will contribute to the pressing needs of creating new therapies against visceral leishmaniasis, an ailment affecting millions across the globe. This work has been published in the American Journal of Tropical Medicine & Hygiene.

## Graduate colloquium speaker



Dr David Senchina, UNI Biology alum, gave a presentation at the UNI Graduate Colloquium on his research with herbal supplement for athletes.

**D**r. David Senchina, Associate Professor of Kinesiology at Drake University spoke at the Department of Biology Graduate Colloquium on Oct. 16 regarding “*An Interdisciplinary Approach to Studying Herbal Supplement Use Among Athletes.*” David’s research examines claims by various over-the-counter products that they can enhance athletic performance. Surprisingly, there is little to no evidence supporting the claims for most products. His findings have been published in notable journals such as the *American Scientist* (2013).

Dr. Senchina says, “The education I received from the UNI Department of Biology was phenomenal. I had great mentors, most notably Drs. Ed Brown, Cherin Lee, and Cathy Zeman. They taught me the most about how biology functions in the “real world”, and their interactions with me shaped how I would later teach and mentor as a faculty member. The coursework was diverse, from Dr. Jim Demastes’ field zoology to Dr. Steve O’Kane’s plant systematics (one Spring Break Drs. O’Kane and Jean Gerrath took three of us to Missouri Botanical Gardens/Monsanto for an unforgettable tour). Of equal importance, I intrinsically enjoyed my undergraduate experience.”

“What I couldn’t appreciate at the time, though, was just how strong of a foundation UNI Biology had given me. In 2000 I graduated from UNI with a bachelor’s degree in biology and another in elementary education with secondary endorsements. I went on to Iowa State

University as a PhD student, spending two years in the Department of Botany and then four years in the Department of Health and Human Performance. The two departments presented me with radically different graduate student coursework, teaching responsibilities, and research challenges...but UNI Biology had prepared me for this, because it had equipped me with a toolkit of core knowledge and skills.”

“That same preparation was invaluable in my first faculty appointment with Drake University’s Biology Department in Fall 2006. I was responsible for teaching sixteen different courses in my first three years; here again, I could rely on the training I’d received at UNI.

Whenever I reached out to UNI Biology for advice or help, people were always generous: a great example is Billie Hemmer, who graciously donated dozens of plants to me during my first year when I was revitalizing our greenhouse collection.”

“Today, I’m still at Drake and teach mostly kinesiology courses and mentor student-driven exercise science research. I serve as both Kinesiology Program Director and Associate Chair of the Biology Department. I’m tremendously appreciative of the UNI Biology faculty and their efforts. It was an awesome, well-designed, and immersing education taught by professors who genuinely cared about their students!”



Dr David Senchina mentors students during classes on kinesiology.

## ◆ Dr. Kelly Amosson



Kelly Amosson grew up in Waverly, Iowa, and graduated from UNI with a B.A. in Biology in May 1994. She then went on to earn her Doctor of Chiropractic degree at Palmer College of Chiropractic in Davenport, Iowa. She also completed studies in acupuncture and has been certified since 2006 thru Cleveland Chiropractic College in Kansas City, MO.

Upon earning her degree, she opened up her practice, Amosson Chiropractic, P.C., in Waterloo, IA. This year Kelly will be in her 20th year of practice in the Cedar Valley. She treats people of all ages and helps them with many conditions using chiropractic and acupuncture.

She attributes much of her success to the great undergraduate education she received at UNI which prepared her for further studies and fondly remembers classes she took with Dr. Seager and Dr. Jurgenson.

## ◆ Dr. David Slykhuis



I graduated from UNI in 1996 with an All-Science Teaching degree. This degree prepared me for a career journey that I did not originally foresee. Upon graduation I began teaching high school at Pana, a small town in central Illinois. Over the course of the five years I was there, I taught chemistry, advanced chemistry, physics, biology, and physical science. (I also coached basketball and golf, taking advantage of my coaching minor.) During those five years, I completed my MS in Education with an emphasis in physical science at Eastern Illinois University. In 2001, I moved to Raleigh, NC to pursue my PhD in Science Education at North Carolina State University, graduating in 2004.

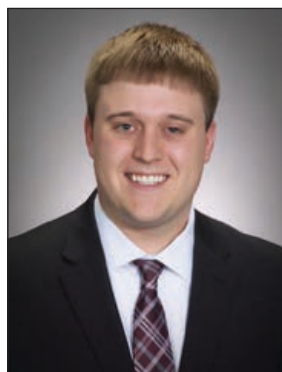
Following my third, and final, graduation I was hired at James Madison University in Harrisonburg, VA as a professor of science education in the College of Education. Again, my All-Science teaching degree was helpful as I taught the science methods courses (how to teach science) for the students who wanted to become middle or high school science teachers in all the science disciplines. During my time at JMU, I was promoted to Associate and Full Professor, served as the Co-Director

of the STEM Center for Education and Outreach and the Director of the Content Teaching Academy, bringing 300-500 teachers on campus each summer for a week-long residential professional development experience.

Starting in August of 2017, I accepted a position at the University of Northern Colorado to become the Assistant Dean of the College of Natural and Health Science as well as the Director of the Math and Science Teaching (MAST) institute. One of my primary responsibilities is overseeing the science education program, including the content courses for preservice elementary teachers, the methods courses for preservice secondary teachers, and a masters program. Again, my preparation at UNI has provided me with an excellent background to work with students and faculty from all science content areas.

Over the course of my career, I have twice received the Madison Scholar Award for being the most outstanding faculty member in research and scholarship in the College of Education at James Madison University. I was given the Recognition in Science Education Award for Higher Education from the Virginia Association of Science Teachers. I have led workshops on infusing technology into higher education sponsored by Microsoft in Stockholm, Sweden (2013); Dubai, UAE (2013, 2014); Bucharest, Romania (2013); Kiev, Ukraine (2013); Doha, Qatar (2014); Chiang Mai, Thailand (2014); and Seoul, Korea (2014). I was elected as the President of the Society of Information Technology and Teacher Education (SITE) and serve as the Chair of the National Technology Leadership Summit.

## ◆ Dr. Matthew Samec, M.D.



I graduated from the UNI Biology program in the spring of 2013 with a major in Biology Honors Research and a minor in Chemistry. While at UNI, I was active in the UNI football program, Big Brothers Big Sisters, the Honors Program, phylogenetic research with Dr. Berendzen, anatomy tutoring

with Ms. Mary McDade, volunteering at Allen Hospital, the Knights of Columbus and CNA work at New Aldaya Lifescapes. I then attended Creighton University School of Medicine (2013-2017) where I was active in free health clinics, the medical school admissions committee, various interest groups and osteoimmunology research. I am currently a first year resident in the Internal Medicine Residency Program in Rochester, MN.

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## ◆ Jason Abbas



Jason Abbas holds a Bachelor of Science and Master of Science in Biology from the University of Northern Iowa.

Jason has spent 24 years in molecular marker technologies and genotyping. He joined Pioneer in 1994 as a research assistant and held a number of research

roles of increasing responsibility. In 2006, he moved to Syngenta Seeds, where he led a diverse group of functions supporting all crops in North America, before rejoining Pioneer in April 2013. Jason is a certified project management professional, a seasoned lean practitioner and a member of the board of directors for the Society for Laboratory Automation and Screening.

Jason recently gave a presentation at the Biology Graduate Colloquium titled, “Scaling Genotyping Innovations for Real World Applications”.

He is currently employed at DuPont Pioneer. Jason says, “For the last five years or so I have been leading a global genotyping team spread across the globe at nine laboratories. My role is to ensure the business (plant breeders and Supply Management) receive data to inform plant breeding decisions as well as do all quality testing for all the seed sold from DuPont Pioneer.”

## ◆ Dr. Krista Todd

Following graduation from UNI in 2003, Dr. Krista Todd pursued a Doctoral degree in Cell and Developmental Neurobiology at the University of California, San Diego. Her research into neuronal development and behavior exposed insights into how neurons develop synapses. In addition to presenting at multiple national and international conferences, some of her graduate results were published in the Journal of Neuroscience, and her photo of tadpoles was published as the cover of the journal Nature in November 2008. During her graduate program at UCSD, she mentored several undergraduate and Masters students, who went on to distinguished advanced programs. Dr. Todd received her Ph.D. in 2009.

Dr. Todd continued her advanced scholarship as a post-doctoral researcher at UCSD, and was appointed as adjunct faculty in the Biology and Neuroscience department at UCSD. Additionally, she is an annual faculty member for the Neural Systems and Behavior course at the Marine Biological Laboratory, in Woods Hole, Massachusetts.

In 2016, Dr. Todd achieved a long-time ambition to teach at a liberal arts college, and is a Professor of Neuroscience at Westminster College, in Salt Lake City, Utah. In addition to full-time teaching, Dr. Todd has an established neuroscience lab, pursues independent research, and collaborates with the Weisblat lab at the University of California, Berkeley. Current students in Dr. Todd’s lab are investigating evolution and behavioral circuits. Dr. Todd’s personal academic interests currently center on fostering the next generations of scientists, and inspiring people of all ages to experience the excitement and possibility of scientific inquiry.

## Study abroad course to New Zealand



Dr. Steve O'Kane and students enjoy a capstone class in New Zealand

Last May I, Dr. Steve O'Kane, and my wife, Arlene, accompanied twenty-one UNI students to New Zealand for a Capstone experience. Our goals were to explore the culture of a different place, observe how energy and food were obtained, and to appreciate the natural landscapes and how humans have altered them. We were ably led by our tour guide, Si, who seemed to know everything about the country.

Outings included areas of both the North and South Islands. After arriving in Auckland, on the North Island, we toured the Auckland Sky Tower and visited Mount Eden, a

low volcano near town. The following days found us exploring a nature preserve on Rangitoto Island, the Maritime Museum, a working farm that raised onions and kiwi fruit, Waitomo Cave with its famous glowworms, the set of the movie *The Hobbit*, taking a canopy tour of a forest nature preserve, gawking at Te Puia-Maori village and geothermal valley, and visiting Huka Falls. Our North Island adventure ended at the country's capitol, Wellington, where we visited Weta Workshop, nearby markets, and the eerie geological phenomenon the Putangirua Pinnacles.

From Wellington we flew to Queenstown on the South Island. For natural beauty it is hard to beat its stunning landscapes. The following days had us visiting Milford Sound for a nature cruise down the fiord to the sea; driving through the eye-popping Southern Alps; stopping at stunning Lake Pukaki; viewing Mount Cook, the country's highest mountain; and, finally driving to Christchurch where we toured the fairly recent earthquake damage. From Christchurch we flew back to Auckland and then to home. A splendid time was had by all and we all learned a great deal. My favorite experience was getting up close and personal with beautiful green parrots, Kea, in the alpine snow of the Southern Alps.

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## New student adviser

Ms Linda Reardon-Lowry joined the Biology Department in October as the department's Academic Advisor. Linda's duties include providing Academic support to Biology and pre-professional majors.

Linda has eight years of experience in higher education. She has been with the University of Northern Iowa for six years. Linda served students in the Department of Technology as a Recruitment Coordinator and through Academic Advising. As part of her duties in Technology, she managed nearly 400 articulation agreements with Community Colleges throughout Iowa and Illinois. She serves as the University's Articulation Coordinator. Linda also supported students in the College of Education serving transfer students as an Academic Advisor.

Linda has been appointed to the UNI Recruitment Council and UNI Transfer Student Council. She is active in

the Academic Advising Network on campus. She has earned the UNI Advisor Certification, possesses a Master's Degree in Business Administration and will earn her Master's Degree in Postsecondary Education: Student Affairs from the University of Northern Iowa this fall. Linda has been recognized with the UNI Panther's First Award and the Student Affairs Helping Students Succeed Commendation.

Linda states, "There are tremendous opportunities for students in Biology and the pre-professional fields. The Biology faculty and staff are committed to students. I'm honored to work with the Biology students to help them succeed."



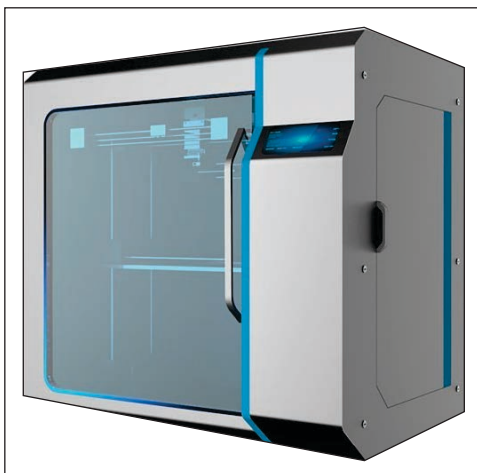
## Biology receives \$303,000 Carver Grant to purchase Micro CT unit and 3D printer



A Micro-CT scanner will be purchased with Roy J. Carver Charitable Trust, funding for the Department of Biology.

The Biology Department was awarded just over \$303,000 from the Roy J. Carver Charitable Trust to update the curriculum of anatomy-focused courses via the purchase of a Micro-CT scanner, an industrial 3-D printer, and supporting computer workstations. Micro-CT technology, combined with 3-D printing, offers UNI Biology faculty an exciting opportunity to improve students' conceptualization of biological knowledge via hands-on use of these instruments and studying the products they create.

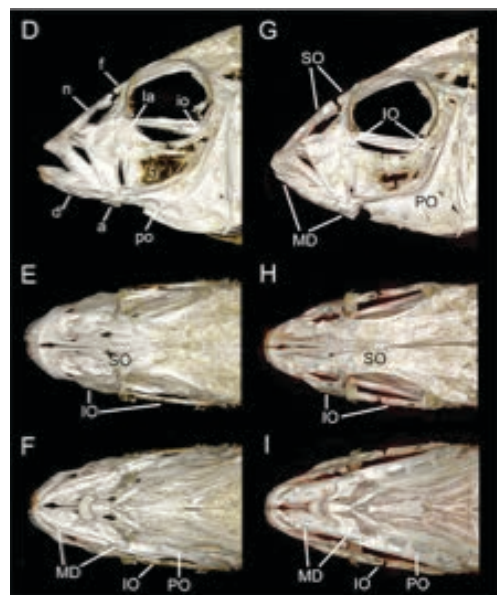
Using the new cutting-edge equipment, students will engage in data collection and manufacturing of anatomical models of their own design, exposing students to current professional technologies they are likely to see in their post-graduate careers. Providing this hands-on involvement with exciting new technologies delivers opportunities for critical-thinking and problem-solving experiences that will give UNI students an advantage when applying to graduate programs or for technical and industrial jobs in the workforce.



Micro-Computed Tomography (Micro-CT) is the x-ray imaging of layers of tissue that are reconstructed to create 3-D images of various anatomical systems, including bone, blood vessels, and the nervous system. Micro-CT uses the same diagnostic technology seen in hospitals (CT scans) across the country to identify and analyze the internal anatomy of patients, however Micro-CT is at a much finer scale which allows incredible resolution of internal structures of smaller samples (usually less than 5", or about 13 cm). The Micro-CT will allow students to explore the internal anatomy of rare or delicate organisms otherwise unavailable for hands-on study due to the destructive nature of classic dissection methods.

Primary use of the Micro-CT and 3-D printer will be in Dr. Nathan Bird's Vertebrate Anatomy course. Using the Micro-CT, students will create

high-resolution bone (see image) and soft tissue reconstructions in several species so they can explore anatomy in detail, then take their original Micro-CT results and create 3-D models of the bones and other organs of their specimen to be displayed in McCollum Science Hall. This is the first time in Iowa that the Micro-CT and 3-D printer have been integrated into an anatomy course, and we are excited to implement both the Micro-CT and 3-D printer into several other courses in the Biology curriculum over the next several years.



Examples of Micro-CT results of the skull in fishes (From Bird and Webb 2014).



## Dr. Tom Rust visits Dr. Saunders in Biology



**D**uring Homecoming weekend, Tom Rust stopped into the Biology Office to say hello. I had not met Tom before, but it was a pleasure visiting with him and hearing him speak about his time as an undergraduate at UNI. Tom was very kind to send me a package several weeks after we had visited. When I opened the package, I was shocked. In it were two of the very Biology lab guides I had used both as a student, and later on as a faculty member. Some of you who are my age might also remember having used these lab guides (see pictures to the right).

Keep in mind, these were produced prior to the onset of digital photography and Photoshop. Tom went through thousands of negatives to find just the right ones to include in the lab guides and then painstakingly labeled each picture. His efforts made my efforts to learn as a student much easier and have benefitted tens of thousands of students pursuing degrees in Biology. I wanted to share Tom's story with you and thus, with kind permission from the Dean's Office, we have reprinted the story about Tom's accomplishments that appeared in the 2014 addition of the *Communique*.

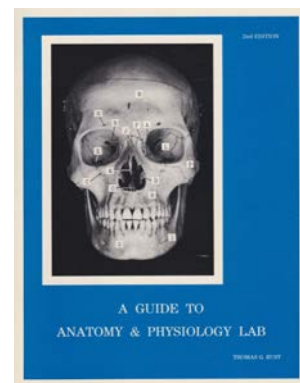
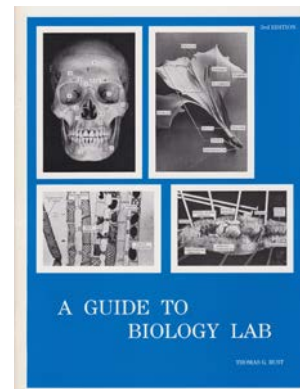
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... Atop a hill in the country north of San Antonio, lives a Texan who left his roots for a spell to study at the University of Northern Iowa. This Texan was hooked by UNI's recruitment efforts and the positive experience he had here. When he left Iowa, he took with him memories and experiences to last him a lifetime. Tom Rust arrived at UNI on the offer of a National Science Foundation Academic Year grant and the promise of an engaging education. He graduated UNI in '67 with an MA in Biology. Rust received his BA from Trinity University in San Antonio.

Rust returned to Texas after graduation and taught at San Antonio College for 20 years before retiring in '87. While at San Antonio College, he taught General Biology, Invertebrate Zoology and Man and His Environment. During that time, he also published two laboratory guidebooks on biology and

anatomy that have sold over 1.5 million copies to date. His books included his own photography featuring dissections, photo-micrographs of slides and other images. At one point, more than 700 of the 3,200 colleges and universities in the United States used his books. Thirty years later, his texts are still used across the nation.

Retirement life has allowed Rust to travel the world. He has visited 54 different countries while pursuing his photography hobby. His favorite destination was India, where he said everything from the clothes, religions, food, architecture, sacred cows, elephants, and tigers was "exotic and different." He also saw the Taj Mahal



Dr. Rust published and sold over 1.5 million copies of laboratory guidebooks on biology and anatomy.

and the Ganges River.

Rust returned to UNI for his 30th class reunion and is looking forward to his 50th. "Sadly, all of my professors have passed away, so I'll only be able to visit old campus haunts and buildings."

Aside from travels, Rust also enjoys bird watching. He described it as a treasure hunt. "You never know what you're going to find or photograph. Once the image is captured, you can enjoy it for years."

Rust has included UNI in his planned giving decisions, which will benefit Biological Science majors. He sees it as a way to repay the opportunity he was given at UNI. "I'd like to give someone else the chance that was given to me. It made a world of difference in my life."

## Dr. Bart Bergquist retires after 40 years in Biology



Coming to Cedar Falls in the fall of 1978, I was excited to encounter new challenges and opportunities as I began my tenure at UNI. I soon realized that the Cedar Falls community and UNI were a good place to be.

The academic position was positive as was the environment for family and their education.

One cannot predict the future, and this was certainly true over the course of my years as so many challenges, first endeavors, and unique opportunities unfolded. I became the first assistant/associate dean for the then College of Natural Sciences, I received the first patent at UNI (with J. Chang, Chemistry) which led to a total of three patents (also with M. Fahmy, Industrial Technology) and becoming part of the developing Intellectual Property Committee. Among others, I also represented UNI to the

Iowa Biotechnology Society and the Iowa Business Council.

I was a part of committees/groups that promote sustainability, including the Recycling and Reuse Technology Transfer Center (RRTTC). Environmental sustainability has been an ongoing element of most of my classes.

A further surprise was a one-year appointment as Acting Head in the Dept. of Computer Science, which became a five-year appointment. Shortly afterward I received another one-year appointment as Acting Head in the Dept. of Industrial Technology, which became a three-year term.

In recent years, I have worked with the Study Abroad Office taking eight student groups on a Capstone course to London and Paris. I also took two more capstone groups to New Zealand.

Circumstances have limited my research activities. Nevertheless, I have enjoyed working with students on a variety of projects involving single cells (protozoa and macrophages). These ranged from studies concerning toxicity, to cell motility and cell development.

Having a home in Biology with its collegial environment, positive academic views and strong attention to students and good teaching it was apparent that the Biology Dept. was one to be envied. In review, my participation in the Biology Department has been a good forty years.

## Staff retirements

Sandi Ingles, Larry Hilton and Bev Schomaker will be retiring from the biology department in July 2018 with a combined 119 years of service to the university.

Sandi arrived in the biology office in 1977 after leaving Iowa State University where she worked in the library for 1 1/2 years. Over the 40 years, Sandi was office coordinator to eight department heads.

After receiving his bachelors degree from Iowa State University, Larry moved to Tennessee where he received his masters degree from the University of Tennessee while working for TVA as a field biologist investigating the impact of steam plants on fish populations. Then in 1984 he came to the UNI Biology Department as stock-room specialist.

Bev started working at UNI in the Communication Center at Price Lab School in 1984 as a graphic specialist and then came to Biology in 2006 preparing graphic materials as needed along with other office duties.



## University of Northern Iowa Awarded Grant Through the Roy J. Carver Charitable Trust

**T**he Roy J. Carver Charitable Trust has awarded \$393,924 to the Departments of Biology, Chemistry & Biochemistry, Earth and Environmental Sciences, and Physics as well as the Science Education program at the University of Northern Iowa to update and modernize science teaching laboratories for non-science majors. This award is one of many such grants the Carver Trust has awarded to UNI, but unlike previous funding, it will primarily impact students in non-science fields. Prior Carver Trust funding was used to purchase laboratory equipment that provided students majoring in science fields the opportunity to work with cutting-edge technology. The most recent funding from the Roy J. Carver Charitable Trust primarily impacts students who are not majoring in the sciences. Equipment purchases will allow for the design of new laboratory activities and the updating of existing science teaching labs for non-science majors. As such, students taking non-majors science laboratory courses will benefit through increased individual access to laboratory equipment, specimens and supplies as a result of this funding. Ultimately, this award will impact a majority of students who are working to fulfill their liberal art core science electives, which is estimated to be 2,500 students per year.

## Reconnect with the Department of Biology

**W**hether it has been decades since you were last a UNI student or just last year, we invite you to reconnect with the students, faculty and staff in the Department of Biology and make an impact.

### 1) **Employment opportunities** –

Does your company hire biology majors? Full-time positions, part-time positions, summer internships, whatever your needs might be, we'd like to make students aware of the career opportunities available to them with your organization.

### 2) **Job shadowing and informational interviewing** –

Many biology majors are at UNI as the first step to their goal of professional or graduate school. In order for them to confirm their interest in their major area of study, we encourage them to job shadow and participate in informational interviews. If you are willing to meet with a student for 30 minutes or half day let us know.

### 3) **Host a student organization** –

The Department of Biology has 12 active student organizations who invite professionals to campus to speak, as well as travel to local organizations for tours and informational meetings. If you are willing to speak to a student group, or host a group of students, we can connect you with some bright and motivated students hoping to follow your path.

### 4) **Faculty as consultants** –

Department of Biology faculty members are actively engaged in research. If their area of interest matches yours, we can connect you to discuss mutual challenges and strategies. You can find information on faculty research at: <http://www.uni.edu/biology/directory>

### 5) **Micro contributions** –

You may have heard of micro lending or micro financing. The Department of Biology is building on the concept. Biology Alumni funds can be

pooled together to make a huge impact with a small donation. We have students in need of scholarship funding, or paid research opportunities, which would benefit both the student and faculty members. Now you can contribute to the success of students, faculty and the department by being a part of collective resources. Through the UNI Foundation, biology alums can give small amounts that add up to make a big difference! If 100 alums gave \$50 each we could fund several undergraduate scholarships or research opportunities and the students would feel an immediate impact.

If any of these opportunities are a fit for you, or if you have other ways you'd like to partner with the Department of Biology, please contact Dr. David Saunders at [david.saunders@uni.edu](mailto:david.saunders@uni.edu), 319-273-2456 or Linda Reardon-Lowry at [linda.reardon-lowry@uni.edu](mailto:linda.reardon-lowry@uni.edu), 319-273-2010 as a first step.

# YOU CAN MAKE A DIFFERENCE!

**W**e take much pride in the accomplishments of our students and we hope that we have played some role in their success. We take very seriously our responsibility to educate and provide opportunities to our students and we are continually looking for ways to improve. With each passing year this has become increasingly difficult. Our departmental budget has not seen an increase in the past 14 years, yet the costs of equipment, supplies, and travel have continued to rise. Our faculty have attempted to meet these challenges and have found ways to support students and provide students with opportunities by obtaining external funds. However, this too has become more difficult.

The cost to students continues to rise through increased costs coupled with fewer opportunities available to students via Uni-

versity-sponsored programs. It now costs the average in-state student approximately \$20,000 a year to attend UNI. Most of our students work outside of the University to support themselves and to pay for tuition. This in turn can impede their education and reduce their time for experiential learning. Although working while attending school can benefit students in learning time management skills, it may also defeat the purpose of attending a university and taking part in all that it can offer.

The financial support of many of our alumni help to provide what would otherwise be lost opportunities to our students. Many of the student scholarships that are offered via private funds have the caveat that students must work within the Department in order to receive scholarship funds. This is a wonderful idea as it requires the

students to participate in our Department and we hope this, in turn, stimulates the students to think of our Department as their home away from home. It provides faculty the opportunity to better know our students and provides our students the opportunity to interact with faculty, a win-win situation for both. Unfortunately, we have too few of these scholarship opportunities available for our students. Your financial support of existing scholarships or the endowment of new scholarships would ensure that our students today receive the same opportunities that were afforded to you. This is a legacy worth leaving. Your financial support of student scholarships and the Department as a whole would be much appreciated. Listed below are the current scholarship funds available for students as well as the Department's Biology fund which supports student/faculty research.

## Scholarships and Funding

### ◆ **Biology Alumni & Faculty Undergraduate Research Fund**

This fund is to be used for general undergraduate support such as but not limited to a partial student award/stipend, research or presentation related expenses, research conference travel, etc.

### ◆ **Biology Awards & Honors**

This fund is used to support "hard working" students who do not have any other financial assistance. Biology faculty nominate deserving students.

### ◆ **Biology Department Fund**

This fund is for general support for the Department of Biology. Monies from this account are used to support faculty/student research, faculty/student travel, and purchase of teaching supplies and equipment.

### ◆ **Biology Preserves Fund**

This fund is used to support the development and maintenance of the Biological Preserves System at UNI, including such items as purchase of trees, shrubs, and equipment as well as for the development of exhibit areas and support of personnel involved.

### ◆ **Caroline Czarnecki Biological Sciences Scholarship**

This scholarship provides support for students who demonstrate merit and financial need, with preference given to students with a declared major in biological sciences, with a grade point average of at least 3.0.

### ◆ **Myrna and Gary Floyd Undergraduate Research Assistantship**

This assistantship is to provide support for two undergraduate research students in the Department of Biology.

### ◆ **Myra and Gary Floyd Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer.

### ◆ **Dr. Robert and Brenda Good Summer Research Fellowship**

This fellowship is intended to support undergraduate student research carried out through the summer.

### ◆ **Floyd Endowed Scholarship in Biology**

Preference is to a Biology Junior or Senior, 3.0 GPA, with an interest in Plant Biology. First preference to students who are most likely to pursue a masters or Ph.D. for continued studies in the same area. Second preference for students who are most likely to go to medical school.

### ◆ **J.S. Latta Biology Scholarship**

This scholarship provides support for a declared biology major, either a freshman or sophomore having either completed or currently enrolled in both Organismal Diversity and Cell Structure and Function. The student must have GPA of 3.5 or higher.

### ◆ **John R. Miller & Mary Lou Mammaing Miller Endowed Biology Scholarship**

Preference to Biology, Senior, 3.0 gpa, given to students planning on a career in field biology or natural history.

### ◆ **Bear and Sandy Stevens Family Endowed Biology Education Scholarship**

This scholarship supports students who demonstrate merit and financial need with preference given to students with a declared major in Biology Teaching, with a grade point average of at least 3.0.

### ◆ **Dr. Alan R. Orr Research Awards**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors with a grade point average of at least 3.2 and conducting research with a faculty member in the Biology Department.

### ◆ **Dr. Dave Swanson Research Award**

This award supports undergraduate experiential learning through hypothesis-driven research. Applicants must be Biology majors conducting research with a faculty member in the Biology Department.

## Let us hear from you . . .

Let us know what you have been up to.  
You can email us at [david.saunders@uni.edu](mailto:david.saunders@uni.edu) or  
return this form to:

**Department of Biology**  
**University of Northern Iowa**  
**Cedar Falls, IA 50614-0421**

First Name \_\_\_\_\_ Last Name (maiden) \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_ State \_\_\_\_\_  
Email: \_\_\_\_\_

Please share any news about you or your family to be included in the next  
Biology Newsletter.

*Contact Info:* David Saunders  
Department Head  
319-273-2456  
[david.saunders@uni.edu](mailto:david.saunders@uni.edu)

*Website:* <http://www.biology.uni.edu/>



# Support for Students or Department

Would you like to support a Biology student and/or the Biology Department?  
If so, please fill out the form below and return it to:

## UNI Foundation Financial Services

121 Commons  
Cedar Falls, IA 50614-0239

If you would like to start your own scholarship, contact Cassie Luze  
cassie.luze@uni.edu or Phone: 319-273-6360

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

E-mail: \_\_\_\_\_ Phone \_\_\_\_\_ Is this a cell phone \_\_\_\_\_

Please check if new address, phone or email.

I/we would like to support the following fund(s)

- \$ \_\_\_\_\_ Biology Alumni & Faculty Research Fund (21-222596)
- \$ \_\_\_\_\_ Biology Department Fund which includes Dr. David Swanson Research Award (21-221607)
- \$ \_\_\_\_\_ Biology Awards & Honors (21-210342)
- \$ \_\_\_\_\_ Biological Preserves Fund (21-220162)
- \$ \_\_\_\_\_ Caroline Czarnecki Biological Sciences Scholarship (21-212250)
- \$ \_\_\_\_\_ Myrna & Gary Floyd Undergraduate Research Assistantship and Summer Research Fellowship (21-222165)
- \$ \_\_\_\_\_ Floyd Endowed Scholarship in Biology (30-213166)
- \$ \_\_\_\_\_ Dr. Robert and Brenda Good Summer Research Fellowship (21-222342)
- \$ \_\_\_\_\_ J.S. Latta Quasi-Endowed Biology Scholarship (20-210303)
- \$ \_\_\_\_\_ Matala Preserves and Research Quasi Endowed Fund (20-222861)
- \$ \_\_\_\_\_ John R. Miller & Mary Lou Mammaing Miller Endowed Biology Scholarship (30-213062)
- \$ \_\_\_\_\_ Dr. Alan R. Orr Research Awards Fund (21-211914)
- \$ \_\_\_\_\_ Bear and Sandy Stevens Family Endowed Biology Education Scholarship (30-212241)
- \$ \_\_\_\_\_ Other
- \$ \_\_\_\_\_ Total

*Online* .....

Go to the online pledge form at [www.uni-foundation.org/](http://www.uni-foundation.org/) and click on "Make an online gift". You will need to enter the specific name(s) of the Biology projects in the "Other" box near the bottom of the web form.

Matching Gifts: My (or my spouse's) company, \_\_\_\_\_ (name) will match my gift. Please contact your HR office for details and the matching gift form to be submitted with your payment.

*Check* .....

Check enclosed, payable to the UNI Foundation

*Credit Card* .....

Credit Card: Please charge my card \$ \_\_\_\_\_ beginning (mo/yr) \_\_\_\_/\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

(required for credit card gifts)

100415

Credit card information will not be kept on file.

Charge my: VISA      MasterCard      Discover      American Express (circle one)

Card # \_\_\_\_\_ Exp. Date \_\_\_\_\_